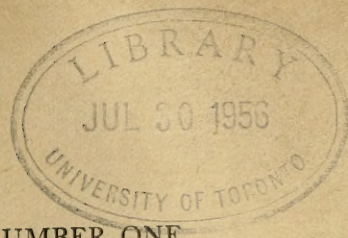
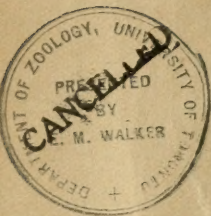


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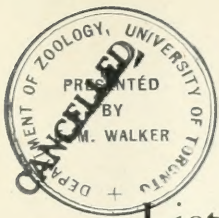
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THE JOURNAL OF ENTOMOLOGY AND ZOOLOGY

William A. Hilton, Editor

Claremont, California, U. S. A.



## List of Spiders from the Claremont-Laguna Region

Many local specimens have not yet been determined. We have no determined specimens of those enclosed in brackets, although there are published records of these species from our general region.

### AVICULARIIDÆ

*Bothriocyrtum californicum* Camb. *Eurypelma californicum* Auss.

### FILISTATIDÆ

(*Filistata hibernalis* Hentz. Banks. Davidson, Los Angeles.)

### DRASSIDÆ

(*Drassinella modesta* Banks. Banks. Baker, Catalina I. *Megamyrmeleon californicum* Simcn. Banks. Baker. *Gnaphosa californica* Banks. Banks. Baker. *Zelotes femoralis* Banks. Banks. Baker. *Z. maculata* Banks. Banks. Baker. *Herpyllus angustus* Banks. Banks. Cockerell, San Pedro. *H. validus* Banks. Banks. Baker.) *Sergiolus bicolor* Banks. Ledig. Ledig.

### PHOLCIDÆ

*Pholcus phalangioides* Fues. Ledig. Ledig.

### SCYTODIDÆ

(*Diguetia canites* McCook. Banks. Davidson, Los Angeles.)

### CLUBIONIDÆ

(*Chiracanthium inclusa* Hentz. Banks. Baker. *Castaneria crocata* Hentz. Banks. Baker. *Trachelas tranquilla* Hentz. *T. californica* Banks. *Trachelas* Sp. *Gayenna celer* Hentz. Ledig. Ledig.)

### AGALENIDÆ

(*Agalina pacifica* Banks. Banks. Baker. Catalina I. *A. californica* Banks.) (*Cybaeus minor* Banks. Banks. Baker.)

### DICTYNIDÆ

(*Dictyna sublata* Hentz. Baker. *Dictyna calcarata* Banks. Cockerell, San Pedro. *D. Volucripes* Keys. Baker.)

### THERIDIIDÆ

(*Theridium tepidariorum* Koch. Davidson, Los Angeles.) *Laterodectus mactans*. Koch. (*Diopenia pictipes* Bank. Banks. Baker.) (*Europis californica* Banks. Banks. Baker. *Steatoda grandis* Banks. Baker.)

### LINYPHIIDÆ

(*Bathyphantes pallidula* Bank. Banks. Baker. *Lophocrenum fasciatum* Banks. Baker. *Erigone californica* Banks. Banks. Baker.)

### MIMETIDÆ

(*Mimetus interfector* Hentz. Banks. Baker.)

### ARGIOPIDÆ

(*Aranea angulata* Clark. Davidson, Los Angeles.) *A. gemma* McCook. (*A. pacifica* McCook. Banks. Baker. *A. oacensis* Keys. Davidson, Los Angeles. *A. conchlea* McCook. Banks. Baker. *Zilla californica* Banks. Banks. Cockerell, San Pedro. *Cyclosa conica* Pallas. Banks. Hutchinson, Los Angeles.) *Agriope argentata* Fab. Moles. Moles. (*A. trifaciata* Forak. Hutchinson, Los Angeles. *Leucauge hortorum* Hentz. Banks. Hutch.) *Meta menardi* Lat.? Ledig. Ledig. *Gasteracantha maura* McCook. Moles.

### TETRAGNATHIDÆ

*Tetragnatha laboriosa* Hentz. Moles. Moles.



## THOMISIDÆ

- (*Xysticus californicus* Keys. Davidson, Los Angeles.) *X. gluosus* Keys. Moles. *X. triguttatus* Keys. Chamberlin. Moles.  
 (*Runcinia californica* Banks. Banks. Baker.) *Misumena californica* Banks. Banks. Davidson, Los Angeles. *M. alcatoria* Hentz. Chamberlin. Moles.  
 (*Thanatus triguttatus* Keys. Banks. Baker.) *Misumessus asperatus* Hentz. Chamberlin. Moles. *Philodromus pernix* Black. Chamberlin. Moles. *Tibellus duttonii* Hentz. Chamberlin. Moles.

## SPARASSIDÆ

- (*Olios fasciculatus* Simon. Banks. Davidson.) *O. abnormis* Keys. Ledig. Ledig.

## PISAURIDÆ

*Dolomedes* sp.?

## LYCOSIDÆ

- (*Lycosa pacifica* Banks. Banks. Baker. *L. brunneiventris* Banks. Banks. Baker.)  
*L. cinerea* Chamb. Corwin. Corwin. *L. carolinensis* Walck. Johns. *Pardosa* sp.  
*Sossippus californicus* Simon. Banks. Baker.) *Pirata* sp. Corwin.

## OXYOPIDÆ

*Feucetia viridans* Hentz. Moles. Moles.

## ATTIDÆ

- (*Phidippus johnsoni* Peck. Banks. Banks. Baker. *P. orpifex* McCook. Banks. Davidson, Los Angeles. *P. bicolor* Keys. Banks. Baker. *P. sp.?*) *Marpissa californica* Peck. Johns. Johns. *Dendryphantès vitis* Cock. Banks. Banks. Baker. *D. harfordi* Peck. Banks. Baker. *Thiodina retarius* Hentz. Banks. Baker. *Pellenes signatus* Banks. Banks. Davidson, Los Angeles. *P. elegans* Peck. Banks. Cockerell, San Pedro. *P. tarsalis* Banks. Banks. Cockerell, San Pedro. *Pellenes speciosa* Banks. Banks. Baker. *Metacryba similis* Banks. Banks. Hutch., Los Angeles. *M. teniola* Hentz. Banks. Baker.

(Contribution from the Zoological Department of Pomona College)

# Tentative List of Hemiptera from the Claremont-Laguna Region

CHARLOTTE JOHNSON, RUTH LEDIG

This list has been compiled from the departmental collections of Pomona College. At this time no attempt has been made to change the determinations of the first specimens to keep pace with recent changes in terminology. Only the first record of the collection of a species is given at this time.

## SCUTELLERIDÆ

- Sphyrocoris punctellus* Stal. V.D. Baker. Claremont, Cal.  
*Eurygaster alternatus* Say. —. Baker. Mountains near Claremont, Cal.  
*Eurygaster shoshone* Kirk. V.D. Baker. Claremont, Cal.  
*Homæmus proteus* Stal. V.D. Baker. Mountains near Claremont, Cal.  
*Homæmus grammicus* Wolff. V.D. Baker. Mountains near Claremont, Cal.  
*Homæmus bijugis* Uhl. V.D. Baker. Mountains near Claremont, Cal.  
*Stethaulax marmoratus* Say. V.D. Baker. Claremont, Cal.

## CYDNIDÆ

- Pangærus margo* Stal. Uhl. Baker. Claremont, Cal.  
*Geotomus parvulus* Uhl. V.D. Baker. Mountains near Claremont, Cal.

## (PLATASPIDÆ)

- Corimelena lateralis* Fab. V.D. Baker. Claremont, Cal.

## PENTATOMIDÆ

- Brochymena pusticlata* Fab. V.D. Baker. Claremont, Cal.  
*Peribalus limbalarius* Stal. V.D. Baker. Claremont, Cal.  
*Banasa dimidiata* Say. O.H. Baker. Mountains near Claremont, Cal.  
*Thyanta perditor* Fab. O.H. Baker. Claremont, Cal.  
*Murgantia histrionicus* Hunn. —. Baker. Laguna Beach, Cal.  
*Nezara hillebrisi* Say. V.D. Baker. Claremont, Cal.  
*Euschistus conspersus* Uhl. V.D. Baker. Mountains near Claremont, Cal.  
*Euschistus impictiventris* Stal. Uhl. Baker. Mountains near Claremont, Cal.

## (ASPIDÆ)

- Perillus splendidus* Uhl. V.D. Baker. Claremont, Cal.  
*Zicrona carulea* L. O.H. —. Mountains near Claremont, Cal.  
*Zicrona cuprea* Dall. O.H. Baker.

## COREIDÆ

- Ficaria apicalis* Dall. V.D. —. Claremont, Cal.  
*Chelinidea vittiger* Uhl. —. Baker. Claremont, Cal.  
*Margus inconspicuus* H.S. O.H. Baker. Claremont, Cal.  
*Catorhintha texana* Stal. Uhl. Baker. Claremont, Cal.  
*Anasa tristis* Deg. —. —. Claremont, Cal.

## (CORIZIDÆ)

- Harmostes reflexulus* Say. Uhl. Baker. Mountains near Claremont, Cal.  
*Aufeuus impressicollis* Stahl. V.D. Baker. Claremont, Cal.  
*Liorhyssus hyalinus* Fab. —. Baker. Claremont, Cal.  
*Arhyssus punctiventris* Dall. —. Baker. Claremont, Cal.  
*Corizus scutatus* Stal. V.D. Baker. Claremont, Cal.  
*Corizus indentatus* Hambl. V.D. Baker. Mountains near Claremont, Cal.  
*Corizus hyalinus* Fabr. V.D. Baker. Claremont, Cal.  
*Corizus lateralis* Say. V.D. Baker. Claremont, Cal.  
*Corizus lateralis roseus* Baker. V.D. Baker. Claremont, Cal.  
*Corizus viriclicatus* Uhl. V.D. Baker. Claremont, Cal.  
*Corizus robustus* Uhl. Uhl. Baker. Claremont, Cal.  
*Screntha trivittatus* Say. —. Baker. Mountains near Claremont, Cal.

*Niesthrea lateralis roseus* Baker. —. Baker. Claremont, Cal.  
*Niesthrea side Fab. scutatus* Stal. Fab. Baker. Claremont, Cal.  
*Niesthrea side Fab. validus* Uhl. Fab. Baker. Claremont, Cal.

## (ALYDIDÆ)

*Tollius curtulus* Stal. O.H. Baker. Claremont, Cal.  
*Alydus pluto* Uhl. V.D. Baker. Claremont, Cal.  
*Alydus setosus* Van D. V.D. Baker. Claremont, Cal.  
*Alydus curtulus* Stal. V.D. Baker. Claremont, Cal.  
*Stachiochnemus apicalis* Dall. V.D. Baker. Claremont, Cal.

## (MEROCORIDÆ)

*Corynochoris distinctus* Mayo. O.H. Baker. Claremont, Cal.

## (ANISOSCELIDÆ)

*Narnia inornata* Dist. Uhl. Baker. Claremont, Cal.  
*Loptoglossus occidentalis* Neid. V. D. —. Claremont, Cal.

## ARADIDÆ

*Aradus lineatus* Say. —. Baker. Mountains near Claremont, Cal.  
*Aradus* n. sp. —. —. Baker. Claremont, Cal.  
*Aradus fallini* Stal. V.D. Baker. Claremont, Cal.

## NEIDIDÆ

*Jalysus spinosus* San. O.H. Baker. Mountains near Claremont, Cal.  
*Neides muticus* Say. V.D. Baker. Mountains near Claremont, Cal.

## LYGÆIDÆ

*Lygacus melanocrocyphos* Say. V.D. Baker. Claremont, Cal.  
*Lygacus pyrrhopterus* Stal. V.D. Baker. Claremont, Cal.  
*Lygacus bicrucis* Say. Uhl. Baker. Claremont, Cal.  
*Oncopeltus fasciatus* Dall. —. Baker. Claremont, Cal.

## (CYMIDÆ)

*Arphuus coriaceipennis* Stal. Uhl. Baker. Mountains near Claremont, Cal.  
*Ischnorhynchus francissanus* Stal. V.D. Baker. Claremont, Cal.  
*Cymus luridus* Stal. V.D. —. Laguna Beach, Cal.

## (GEOCORIDÆ)

*Geocoris palleus decoratus* Uhl. V.D. Baker. Claremont, Cal.  
*Geocoris decoratus solutus* Mont. Mont. Baker. Mountains near Claremont, Cal.  
*Geocoris uliginosus Say. limbatus* Stal. Mont. Baker. Claremont, Cal.

## (MYODOCHIDÆ)

*Emblethis vicarius* Horv. V.D. —. Claremont, Cal.  
*Scolopostethus tropidalis* Dist. V.D. Baker. Claremont, Cal.

## (PACHYGRONTHIDÆ)

*Peliopelta abbreviata* Say. —. Baker. Mountains near Claremont, Cal.

## (HETEROGASTRIDÆ)

*Heterogaster behrensii* Uhl. V.D. Baker. Claremont, Cal.

## (MYODOCHIDÆ)

*Ozophora picturata* Stal. —. Baker. Mountains near Claremont, Cal.  
*Rhyparochromus sodalicus* Uhl. V.D. Baker. Mountains near Claremont, Cal.

## (ORSILLIDÆ)

*Nysius californicus* Stal. V.D. Johnson. Pine Lake, So. Cal. Mountains near Claremont, Cal.

*Nysius senecionis Schill—strigosus* Uhl. —. Baker. Mountains near Claremont, Cal.

*Nysius Angustatus—minutus* Uhl. —. Baker. Mountains near Claremont, Cal.

*Ortholomis cookii* Baker. —. Baker. Mountains near Claremont, Cal.

*Ortholomis arphnoides* Baker. —. Baker. Mountains near Claremont, Cal.

*Ortholomis longiceps* Stal. —. Baker. Mountains near Claremont, Cal.

*Ortholomis langiceps* Stal. V.D. Baker. Claremont, Cal.

*Ortholomis arphnoides* Baker. V.D. Baker. Claremont, Cal.



PYRRHOCORIDÆ

*Largus convexus* Dist. Uhl. Baker. Claremont, Cal.

TINGIDIDÆ

- Teleonemia nigrina* Uhl. O.H. Baker. Claremont, Cal.  
*Corythucha setosa* Champ. O.H. Baker. Claremont, Cal.  
*Piesma cinera* Say. Uhl. Baker. Mountains near Claremont, Cal.  
*Corythucha* —. V.D. Baker. Mountains near Claremont, Cal.  
*Corythucha sordidula* Uhl. Ms. Uhl. Baker. Mountains near Claremont, Cal.  
*Corythucha setosa* —. —. Baker. Mountains near Claremont, Cal.  
*Corythucha catala* —. O.H. Baker. Nor. Uhl. Claremont, Cal.

REDUVIIDÆ

(HARPACTORIDÆ)

- Zelus incarnatus* Bergs. —. Baker. Claremont, Cal.  
*Sinea complexa* Caud. O.H. Baker. Claremont, Cal., and mountains near.  
*Sinea diadima undulata* Uhl. V.D. Baker. Claremont, Cal.  
*Sinea diadema* Fabr. V.D. Baker. Claremont, Cal., and mountains near.  
*Zelus* (Diptodus) *socius* Uhl. O.H. Baker. Claremont, Cal.  
*Zelus raptoria* Stal. Uhl. Baker. Mountains near Claremont, Cal.  
*Pselliopus spinicollis* Champ. V.D. Baker. Mountains near Claremont, Cal.  
*Rhyncoris ventralis* Say. V.D. Baker. Claremont, Cal.  
*Darbanus georgias* Prov. —. Baker. Claremont, Cal.  
*Zelus cervicalis* Stal. Uhl. Baker. Mountains near Claremont, Cal.

(ACANTHASPIDÆ)

- Conorhinus productus* Uhl. —. Baker. Claremont, Cal.  
*Conorhinus protractus* Uhl. Uhl. Baker. Claremont, Cal.

(PIRATIDÆ)

- Rasahus biglutatus* Say. Uhl. Baker. Mountains near Claremont, Cal.  
*Rasahus thoracicus* Stal. V.D. Baker. Laguna Beach, Cal.

PHYMATIDÆ

- Phymata erosa* L. —. n. var. Baker. Mountains near Claremont, Cal.  
*Phymata acutanaula* Quer. —. Baker. Mountains near Claremont, Cal.

(ENESIDÆ)

- Ploiaria californica* Baker. —. Baker. Claremont, Cal.  
*Barce banksii* Baker. —. Baker. Mountains near Claremont, Cal.  
*Emesa brevicoxa* Bks. —. Baker. Claremont, Cal.  
*Ploiariodes tessellata* Baker. —. Baker, Metz. Claremont, Cal.

HEBRIDÆ

- Hebrus ornatus* Uhl. Uhl. Baker. Claremont, Cal.

NABIDÆ

- Nabis* (ferus) Linn. V.D. Baker. Claremont, Cal., and mountains near.

MIRIDÆ

- Lopidea indentata* Uhl. Uhl. Baker. Claremont, Cal.  
*Lopidea nigridea* Uhl. V.D. Baker. Claremont, Cal.  
*Closterocoris ornatus* Uhl. Uhl. Baker. Claremont, Cal.  
*Clostocoris amoenus* Prov. V.D. Baker. Claremont, Cal.  
*Irbisia sericans* Stal. V.D. Baker. Claremont, Cal.  
*Irbisia politus* Uhl. Am.R. Baker. Claremont, Cal.  
*Pæcilocapsus nigriger* Stal. V.D. —. Claremont, Cal.  
*Pæcilocapsus lineatus* Fab. Uhl. Baker. Claremont, Cal.  
*Pæciloscythus elegans* Reut. Om.R. Baker. Mountains near Claremont, Cal.  
*Pæciloscythus uhleri* Van D. V.D. Baker. Mountains near Claremont, Cal.  
*Systratiotus brunneus* Uhl. Uhl. Baker. Mountains near Claremont, Cal.  
*Trachycoris socius* Uhl. Uhl. Baker. Mountains near Claremont, Cal.  
*Irbisia brachycerus* Uhl. V.D. Baker. Claremont, Cal.  
*Lygus rubicundus* Fall. Om.R. Baker. Mountains near Claremont, Cal.  
*Lygus Bakeri* Reut. Om.R. Baker. Mountains near Claremont, Cal.

*Lygus Pratensis* Linn. O.H. Baker. Claremont, Cal.  
*Phytocoris roseus* Uhl. Om.R. Baker. Claremont, Cal.  
*Phytocoris cunescens* Reut. Om.R. Baker. Claremont, Cal.  
*Phytocoris rufoniptus* Van D. V.D. Baker. Claremont, Cal.  
*Phytocoris Bakeri* Reut. Om.R. Baker. Claremont, Cal.  
*Phyteocoris* sp. —. V.D. Baker. Claremont, Cal.  
*Eugytatus simplex* n. sp. —. Reut. Baker. Mountains near Claremont, Cal.  
*Diaphnidia pellucida* Uhl. O.H. and Om.R. Baker. Claremont, Cal.  
*Hycidea picta* Uhl. V.D. Baker. Claremont, Cal.  
*Arthattylus chloronis* Say. V.D. Baker. Claremont, Cal.  
*Diaphnida hamata* Van D. V.D. Baker. Claremont, Cal.  
*Tiryas elongatus* Uhl. V.D. Baker. Claremont, Cal.  
*Plagiognathus moerens* Reut. V.D. Baker. Claremont, Cal.  
*Plagiognatharia atomoscelis seriatus* Reut. O.H. and Om.R. Baker. Claremont, Cal.  
*P. europiella umbrina* Reut. Om.R. n. sp. Baker. Claremont, Cal.  
*P. macrotylus moebens* Uhl. —. Baker. Claremont, Cal.  
*P. psallus* sp. —. V.D. Baker. Claremont, Cal.  
*P. rhinacloa forticornis* Reut. Om.R. Baker. Claremont, Cal.  
*Oncotylaria hoplomachus consors* Uhl. Om.R. Baker. Claremont, Cal.  
*Cyllocoraria orthotylus planatus* Uhl. Om.R. Baker. Mountains near Claremont, Cal.  
*Pilorphoraria pamilla Behrensii* Uhl. Uhl. Baker. Claremont, Cal.  
*Dicypharia californicus* Stahl. Om.R. Baker.  
*Dicyphus vestitus* Uhl. V.D. —. Laguna, Cal.  
*Haboparia hadronema robusta* Uhl. Om.R. Baker. Elsinore, Cal.  
*Haboparia hyoidea grisea* Reut. Om.R. Baker. Claremont, Cal.  
*Haplomachidea consors* Uhl. Om.R. Baker. Claremont, Cal.  
*Camplobrochis schwartz* Uhl. V.D. Baker. Claremont, Cal.  
*Creontiades femoralis* V.D. V.D. —. Laguna, Cal.  
*Orthotulus planatus* Uhl. Om.R. Baker.

## GERRIDÆ

*Hygrotrechus productus* Uhl. Det.Uhl. Baker. Claremont, Cal.  
*Hygrotrechus remigis* Say. Uhl. Baker. Mountains near Claremont, Cal.  
*Hygrotrechus robustus* Uhl. Uhl. Var.Baker. Mountains near Claremont, Cal.  
*Gerris canaliculatus* Say. —. R.M. Mountains near Claremont, Cal.

## VELIADÆ

*Macrovelia abliger* Uhl.M. Uhl. Baker. Mountains near Claremont, Cal.  
*Microvelia americana* Uhl. Det.Uhl. Baker. Claremont, Cal.

## (ACANTHIADÆ) SALDIDÆ

*Salda pallipes* Fab. Uhl. Baker. Elsinore, Cal.  
*Saldula interstitialis* Fab. V.D. —. Laguna, Cal.

## NOTONECTIDÆ

*Notonecta americana* —. Buene. Baker. Claremont, Cal.  
*Notonecta indica* Linn. V.D. —. Claremont, Cal.  
*Notonecta insulata* Kay. O.H. Baker. Claremont, Cal. Mountains near Claremont, Cal.  
*Notonecta mexicana* A.&S. —. Baker. [Fieb. V.ceres] Claremont, Cal., and mountains near.  
*Anisops pallidus* Champ. Var. Uhl. Baker. Claremont, Cal.

## BELOSTOMATIDÆ

*Serphus dilatatus* —. —. Baker. Mountains near Claremont, Cal.  
*Abedus delatatus* Say. V.D. —. Laguna, Cal.  
*Zaitha elliptica* Lat. Uhl. Baker. Claremont, Cal.  
*Belostoma apache* Kirk. V.D. —. Laguna Beach, Cal.

## NAUCORIDÆ

*Ambrysus signoreti* Stal. Uhl. Baker. Claremont, Cal.



ANTHOCORIDÆ

- Triphleps insidiosus* Say. Uhl. Var. Baker. Claremont, Cal. Mountains near Claremont, Cal.  
*Anthocoris marginatus* Uhl. Uhl. Baker. Mountains near Claremont.  
*Anthocoris antevolvens* B.White. Uhl. —. Claremont, Cal.

CORIXIDÆ

- (*Corsa cubæ*)—*Callicorixa Kollorii* Fieb. —. Baker. Mountains near Claremont, Cal.  
*Corixa* sp. —. Baker. Claremont, Cal.  
*Corixa alternata* Say. Uhl. Baker. Claremont, Cal.  
*Corixa mercenarica* Say. Uhl. Baker. Elsinore, Cal.

CICADIDÆ

- Platypedia minsi* Uhl. —. Baker. Claremont, Cal.  
*Okanagana blaisdelli* Uhler. —. Baker. Mountains near Claremont, Cal.  
*Okanagana rinosa* sq. Say. Var. Baker. Mountains near Claremont, Cal.  
*Tibicen blaisdelli* Uhl. —. Baker. Claremont, Cal.  
*Tibicen cupres-sparsa* Uhl. —. Baker. Claremont, Cal.  
*Tibicen rinosa* Say. —. Baker. Claremont, Cal.

CERCOPIDÆ

- Clastopterine clastoptera linneaticollis* Stal. —. Baker. Mountains near Claremont, Cal.  
*Clastopterine clastoptera obtusa* Say. —. Baker. Claremont, Cal.  
*Clastopterine clastoptera binotata* Ball. —. Baker. Mountains near Claremont, Cal.  
*Aphrophora* sp. —. —. Baker. Claremont, Cal.

MEMBRACIDÆ (SIMLIDÆ)

- Stictocephala inermis* Fabr. Var. Baker. Mountains near Claremont, Cal.  
*Stictocephala Franciscana* Stal. Var. Baker. Elsinore, Cal.  
*Stictocephala lutea* Wlk. —. Baker. Claremont, Cal.  
*Micrutalis binaria* F.W.L. v.paleus. Baker. Claremont, Cal.  
*Micrutalis binotata* [Gody] Var. —. Baker. Claremont, Cal.  
*Ceresine albidosparsa* Stal. —. Baker. Claremont, Cal.

CICADELLIDÆ (JASSIDÆ)

- Paragomia 13-punctata* Ball. F.H.L. Baker. Claremont, Cal.  
*Thamnotettix geminatus* Van D. F.H.L. Baker. Claremont, Cal.  
*T. gloriosus* Ball. F.H.L. Baker. Claremont, Cal.  
*T. mendicus* Ball. F.H.L. Baker. Claremont, Cal.  
*Phelpsianus spatulatus* Van D. F.H.L. Baker. Mountains near Claremont, Cal.  
*Empocisca flavescens* Fab. F.H.L. Baker. Claremont, Cal.  
*Dicraneura unipuncta* Gill. Form. Baker. Mountains near Claremont, Cal.  
*Cicadula criogonum fasciculatum*  
*Gnathodus impictus* Van D. —. Baker. Claremont, Cal.  
*Thamnotettix coquillettii* Van D. —. Baker. Claremont, Cal.  
*Uhleriella coquilletti* Van D. —. Baker. Claremont, Cal.  
*Platymstopius acutus* San. —. Crawford. Mountains near Claremont, Cal.  
*Deltocephalus melsheimerii* Fh. —. Baker. Mountains near Claremont, Cal.  
*Typlocybinae typhlocyba tricincta* Fn. —. Baker. Crawford. Mountains near Claremont, Cal.  
*T. typhocyba obliqua*. —. —. Baker. Claremont, Cal.  
*T. typhocyba comes* n. var. —. —. Baker. Claremont, Cal.  
*T. typhocyba commissuralis* Stal. —. Baker. Mountains near Claremont, Cal.  
*Empoasca alboreura* Gill. Form. Baker. Claremont, Cal.  
*E. tessellata* Fieb. —. Baker. Claremont, Cal.  
*E. viridescens* Walsh. —. Baker. Mountains near Claremont, Cal.  
*E. pura* Stal. —. Baker. Mountains near Claremont, Cal.  
*E. aureoviridis* Uhl. Form. Baker. Claremont, Cal.  
*Dicraneura* n. sp. near *abnormis*. —. —. Baker. Mountains near Claremont, Cal.  
*D. carneola* Stal. —. Baker. Mountains near Claremont, Cal.  
*D. fieberi* Löw. —. Baker. Claremont, Cal.

## (TETTIGONIDÆ)

- Tettigonia circellata* Baker. —. Baker. Mountains near Claremont, Cal.  
*T. hierglyphica* Ball. —. Baker. Mountains near Claremont, Cal.  
*Draeculacephala minor* Wek. —. Baker.  
*Oncometopia costalis* Fab. —. Baker. Mountains near Claremont, Cal.

## (GYPONIDÆ)

- Ledra aurita* L. —. Baker. Claremont, Cal.

## (BYTHOSCOPIDÆ)

- Idiocerus distinctus* O. & B. —. Baker. Mountains near Claremont, Cal.  
*Idiocerus musteus* Ball. —. Baker. Mountains near Claremont, Cal.  
*Idiocerus alternatus* Fh. —. Baker. Mountains near Claremont, Cal.  
*Agallia cinerea* O. & B. —. Baker. Mountains near Claremont, Cal.

## FULGOROIDÆ

- Ormenis pruinosa* Say. —. Baker. Claremont, Cal.

## (DELPHACIDÆ)

- Liburnia consinilis* Van D. —. Baker. Mountains near Claremont, Cal.  
*Stabaera tricarinata* Sag. D.L.C. Baker. Claremont, Cal.  
*Kormus californica* Crawf. D.L.C. Baker. Claremont, Cal.

## (DICTYOPHARIDÆ)

- Belonocharis fumida* Uhl. —. Baker.  
*Scolops palidus* Uhl. V.D. Baker. Mountains near Claremont, Cal.

## (ISSIDÆ)

- Orgernis* [*Tropida chidæ*] *rhyparus* Stahl. —. McC. Claremont, Cal.  
*Peltonotellus bivittatus* Ball. —. Baker. Claremont, Cal.  
*Naethus nigronervosus* Xhelich? V.D. Baker. Claremont, Cal. Laguna.  
*Dyctidea* [*Hysteropterinae*] *intermedia* Uhl. —. Baker. Claremont, Cal.  
*Dyctissa mutata* Mel. —. Baker. Mountains near Claremont, Cal.  
*Neethus fenestratus* Uhl. Mal. Baker. Mountains near Claremont, Cal.  
*Danepteryx manca* Uhl. —. Baker. Mountains near Claremont, Cal.  
*Danepteryx lurida* Mel. —. Baker. Claremont, Cal.  
*Issus dilatatus* F. —. Baker. Mountains near Claremont, Cal.

## (CIXIIDÆ)

- Chlorodus* —. —. Baker. Mountains near Claremont, Cal.  
*Chlorodus viridia* Mel. n-sp. & n-g. Baker. Claremont, Cal.  
*Oecleus* [?] —. —. Baker. Claremont, Cal.  
*Cixius* —. —. Baker. Elsinore, Cal.

## CHERMIDÆ (PSYLLIDÆ)

- Paratrioza ocellata* Crawf. Baker. Claremont, Cal.  
*Paratrioza maculipennis* Crawf. —. Baker. Claremont, Cal.  
*Triozaida californica* Crawf. —. Baker. Mountains near Claremont, Cal.  
*Aphalara calthæ* Linné. Crawf. Baker. Claremont, Cal.  
*Aphalara pulchella* Crawf. —. Baker. Claremont, Cal.  
*Calophya californica* Schw. Crawf. Metz. Claremont, Cal.  
*Calophya triozomina* Schw. Crawf. Baker. Claremont, Cal.  
*Psylla Americana* Crawf. —. Baker. Mountains near Claremont, Cal.  
*Psylla alni gossypiona* Crawf. —. Baker. Mountains near Claremont, Cal.  
*Psyllopa ceanothæ* Crawf. —. Crawf. Mountains near Claremont, Cal.  
*Psyllopa minuta* Crawf. —. Baker. Claremont, Cal.  
*Triozia aurantiaca* Crawf. —. Baker. Laguna Beach, Cal.  
*Triozia albifrons* Crawf. —. Baker. Mountains near Claremont, Cal.  
*Triozia flori* Crawf. —. Baker. Laguna Beach, Cal.



# Four New Western Diplopods

BY RALPH V. CHAMBERLIN

Of the following previously unnamed species of millipedes, three are from California and one from Arizona. The diagnoses are separately published in order that the names may be available for early use elsewhere.

## *Brachydesmus californicus* sp. nov.

This species, the first of the genus to be described from this country, seems to be fully congeneric with the numerous species described from the eastern hemisphere.

The general color of the dorsum is dark brown mesally, but the carinæ are paler, in part somewhat light yellow. Legs and antennæ brown.

Vertigial sulcus obsolete. Head densely clothed with short straight setæ. Antennæ long, strongly enlarged distad.

First dorsal plate decidedly narrower than head with mandibles, but wider than head proper. Anterior margin in the middle region straight, curving caudad at each end to the lateral angle; caudal margin straight over the middle, oblique at the ends, with tubercles very distinct, setigerous, in four rows or irregularly in five.

On the other metazonites the transverse sulcus between the first and second rows of tubercles deep, dividing the tergites almost equally, the caudal division but little the larger. Tubercles strongly marked, those of the third row much smallest. Anterior corners of keels in anterior somites nearly rectangular, but in the others distinctly drawn forwards. Lateral teeth of carinæ distinct, three in front of the one at the caudal corner. Upper surface of keels covered with crowded, distinct tubercles. Keels not at all elevated, in line with middorsum.

Sternites in male each with a distinct cruciform impression.

Above the base each gonopod is in the form of a thin blade which widens clavately distad, there forming a concave, somewhat spoonlike body from which arise on the distal end two acute teeth or processes of which the one on the mesal side is much the longer.

Length about 8.5 mm.

*Locality.* California: Stanford. One male.

## *Leptodesmus (Isaphe) simplex* sp. nov.

From the other known species of this group, *I. convexa* from Idaho, the present species is readily distinguished in having the anterior prong of the gonopod considerably shorter than the posterior prong which is also much broader and more plate-like, but which is narrowed regularly distad to an acute point. The two principal blades cross each other in the middle line; but the prongs of each gonopod are widely divergent, not distally as in *convexa*.

The general color of the dorsum is brown of a somewhat chestnut cast with the carinæ bright yellow. Antennæ and legs yellow.

Vertigial sulcus distinct, ending at the level of the upper borders of the antennal sockets.

Dorsum strongly convex, the keels near middle of height of the somites. Surface smooth and shining. The caudal margin of the first tergite is mesally straight, bending convexly forward on each side and then somewhat concave just mesad of each end so that the ectal angle appears to bend caudad slightly. The carinæ of the immediately following somites are bent forward. In going caudad the posterior sides

of the carinæ become first straight, the corners sub-rectangular, and then more and more bent caudad, the angles becoming more and more strongly produced caudad. The processes of the seventeenth and eighteenth somites are strongest, those of the nineteenth much smaller and more rounded and this entire segment overlapped and essentially wholly covered by the preceding one. The carinæ more strongly developed and produced than in *convexa*.

Repugnatorial pores as usual in the family.

Length of type (male), about 31 mm.; width, 5.5 mm.

*Locality.* California. One male taken in April, 1893, the precise place unknown.

*Farajulus arius* sp. nov.

The general color effect is brown. Each somite is darker in a broad band across dorsum, where especially in the anterior region it is blackish, and down the sides, the band somewhat nearer the anterior edge than the posterior and becoming paler in going ventrad. This dark band embraces on each side of the median line above a short transverse light mark, between the ectal end of this and the repugnatorial pore a larger oblique light mark, while below the pore is a much larger light area narrowing ventrad and more or less covered with a network of dark lines, and a large area farther ventrad, about midway between the preceding one and the legs, which is not sharply limited, the enclosing anterior and posterior dark stripe being thin. The head is light excepting a broad dark band between the eyes and extending down between the antennæ, this dark area embracing above and close to the median line a pair of small light areas which are farther from each other than each is from the corresponding antennal socket. At the vertex the usual areolation. First tergite with a darker anterior and posterior band, these extended at middle line, the rest of the plate areolated. Legs yellow. Antennæ dusty.

Eye patch black; subtriangular, with the posterior and anterior sides convex. Ocelli in seven or eight subvertical series, about fifty-six in number: e. g., 10, 10, 9, 8, 7, 6, 4, 2.

The first dorsal plate in the male is moderate, the lower margin slightly convex, of medium length, the corners well rounded. Lower border and lower part of anterior one margined, the caudal one more vaguely so, the elevated ridge of the lower margin broader anteriorly than posteriorly. Second segment in male not produced below the first, the lower ridgelike projection being on a level with the edge of the first tergite. Anterior somites strongly striate beneath, the striæ becoming sidely separated in going dorsad toward the pores.

Repugnatorial pores widely separated from the suture which opposite it is straight, not at all curved or emarginate.

Anal tergite triangularly narrowed caudad, the tip exceeding the anal valves moderately, but not at all spine-like.

The cardo of the mandible in the male in outline in lateral view is subquadrate, being broadly truncate below with the caudoventral corner moderately bulging and strongly rounded, not at all produced below. The first legs are enlarged moderately and curved in the usual way. The second legs reduced and elevated as usual.

The anterior gonopods of the male are elongate wide bodies somewhat clavately widening and at the same time thickening distad where they are in contact at the median line and largely conceal the posterior gonopods from below and in front much as in *pennsylvanicus*; each is truncate distad, and the distal end crossed by a transverse furrow which continues down the mesal side and in part embraces the second



gonopods which rise a little beyond the distal ends of the anterior ones, where each curves moderately ectad. The second gonopods anteriorly between the others where they lie close together and proximally are contiguous.

Number of somites sixty-six.

Length, somewhat uncertain because of the broken condition of the type, but very nearly 31 mm.; width, 1.6 mm.

*Locality.* California: Stanford. One male collected by Harold Morrison, Dec. 18, 1910.

*Spirobolus miles* sp. nov.

This is a large species like *S. marginatus* and *S. uncigerus*. From those species it is at once separable in not having the second segment angularly produced below the first tergite, but instead evenly convexly rounded.

Also unlike those species the segments are anteriorly reddish or somewhat chestnut, while the caudal border is colored with a broad deep brown or blackish band, the red and black stripes in general appearing nearly equal. Along the caudal is a deeper black line. Over the repugnatorial glands are a series of small black triangular spots. The anal tergite is reddish brown excepting caudal, where blackish. First tergite blackish over a chestnut background, the anterior margin a clearer chestnut. Anal valves reddish brown. Legs brown. Head blackish above and to below antennæ; labrum chestnut.

The eyes are large, somewhat in the form of a right triangle with the hypotenuse anterior in position. Ocelli numerous, about sixty-five in number, arranged in seven slightly curved series paralleling the caudo-dorsal edge of the eye. Vestigial sulcus ending nearly on a level with the upper borders of the antennal sockets. Sides of head and mandibles somewhat depressed, but not distinctly furrowed for the reception of the antennæ.

The anteroventral corner of the first tergite is carried moderately forward, the corner being separated off from the rest of the plate by a strong sulcus extending from near the anterior margin opposite the eye obliquely caudoventrad to the upper level of the rounded caudoventral corner. Cephaloventral of this main sulcus are three others, of which the uppermost does not extend over the cephalic part, in addition to the finer margining sulcus which parallels the lower margin and the lower part of the anterior margin.

The other somites are strongly striate below the level of the repugnatorial pores. The repugnatorial pores are small; each is widely separated from the sulcus which opposite it curves widely and but weakly forward. The anal valves have the mesal borders very strongly elevated.

The number of somites in the type (female) is sixty-six.

Length in the neighborhood of 130 mm.; width, 8.5 mm.

*Locality.* Arizona: Ft. Boutelle. Capt. H. Boutelle. One female.

# The Central Nervous System of a Cumacean

WILLIAM A. HILTON

The species studied was determined by the U. S. Nat. Mus. to be *Colurostylis occidentalis* Calman.

Specimens were fixed in the usual reagents, Flemming's fluid and Mercuric chloride were especially used, and sections were made of the whole body. Although the animals are small some difficulty was encountered in sectioning, but a few perfect series were obtained; that is, perfect in most respects, for in many cases parts of the specimen crumbled in cutting or fell from the slide before mounting. To supplement the sections, the nervous system was exposed with needles and removed. This proved to be quite difficult but a few perfect dissections were made and the ganglia removed, stained and mounted. Such small bits of tissue were hard to handle because easily lost in stains, so dilute solutions were used for a long period.

The central nervous system consists of the brain, eleven thoracic ganglia and six abdominal ganglia. The three ganglia just below the brain are almost fused into one mass and the other ganglia of the thoracic region are unequal distances from each other, the last three being separated from the others and quite close together. The last abdominal ganglion is wider than the others but not much larger. Running between the connectives a very fine median nerve was found.

The brain has quite well marked tracts connecting its parts with each other and with lower levels. Figs 2 and 3. The ventral ganglia of the thoracic region have the usual distribution of cells as shown in section, Figs 4 and 5. In surface view the thoracic ganglia are seen to have definite cell groups. Fig. 7. The abdominal ganglia are much simpler as shown in the cross section, Fig. 6; and the whole mount, Fig. 8. The last abdominal ganglion has more cells, Fig. 9, but there are not so many isolated groups as in the thoracic ganglia.

I have been unable to find any recent literature relating to the nervous system of Cumaceans.

The following general points seem true:

1. The brain is more complicated than the size of the animal seems to indicate, more so than primitive Crustacea, such as Branchipus, or Nebalia.
2. The arrangement of the ganglia shows a considerable modification from a simple condition.
3. The lack of complex structures in the abdominal region brings about a simple condition of the ganglia in this part.

(Contribution from the Zoological Department of Pomona College)



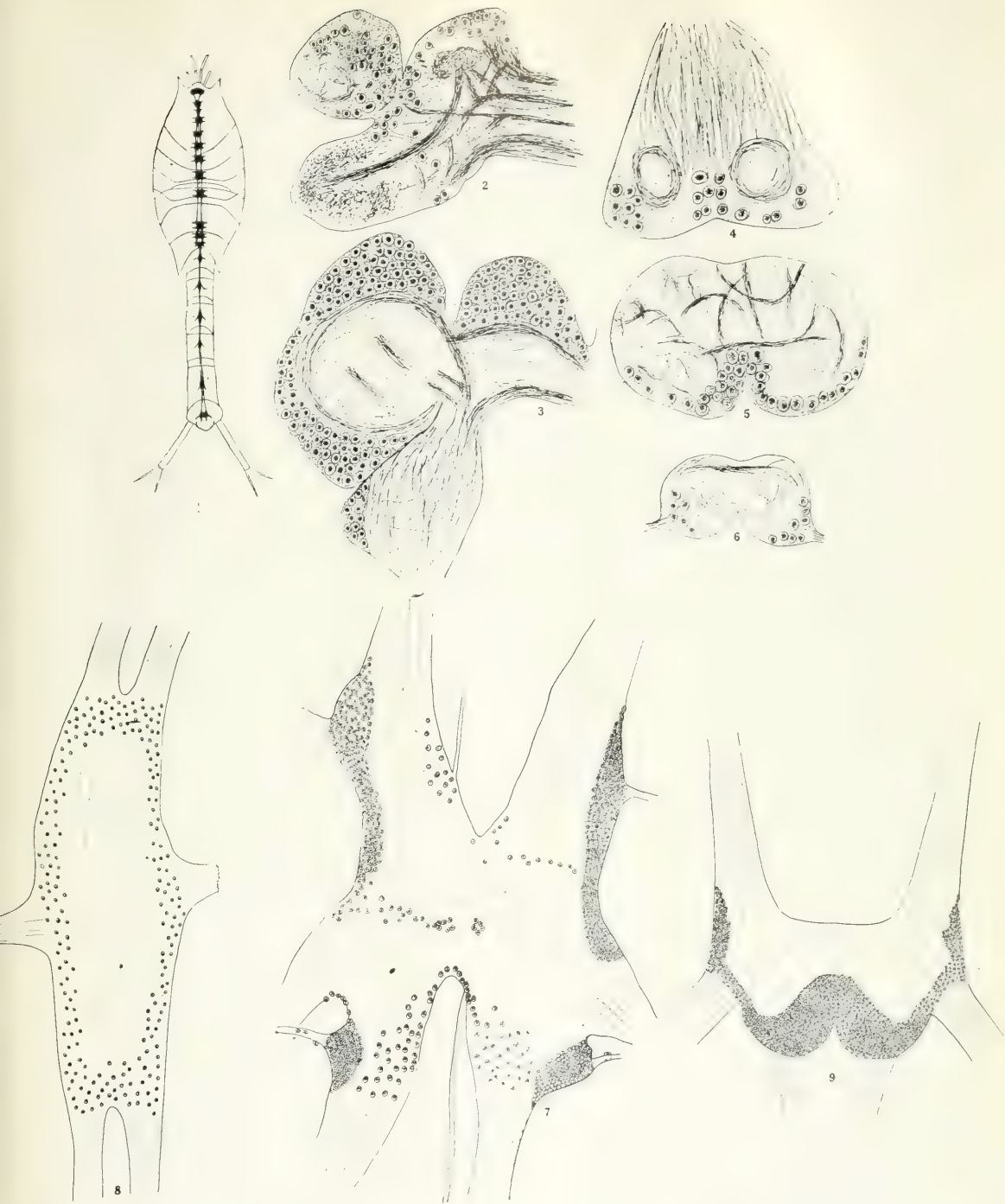


Fig. 1. Plan of the central nervous system of *Colurostylus*. X10.  
 Fig. 2 and Fig. 3. Cross sections of the brain, one half shown. X150.  
 Fig. 4. Cross section of the first ventral ganglion. X150.  
 Fig. 5. Cross section of one of the thoracic ganglia. X150.  
 Fig. 6. Cross section of one of the upper abdominal ganglia. X150.  
 Fig. 7. Surface view of one of the thoracic ganglia. X150.  
 Fig. 8. Surface view of an upper abdominal ganglion. X150.  
 Fig. 9. Surface view of the last abdominal ganglion. X150.

# Land Molluscs Near Claremont

IVAN JOHNSON

## LAND FORMS

*Helix aspersa* Muller. The common introduced snail.

*Glyptostoma newberryanum* Binney. A single specimen in the Biology class collection of 1915-16.

*Epiphragmophora traski* sub. *zechæ* Bart. One live animal from Ice House Canyon. Altitude 6500 feet.

*E. tudiculata* (Binney). Apparently very common and variable.

*Zonitoides arboreus* (Say). Common under bark of trees along streams.

*Limax flavus* L. The common slug.

*L. maximus* L. Not so common as the last.

## FRESH WATER FORMS

*Planorbis trivolvis* Say. Common in creeks.

*Physa frontinalis acuta* Drap. Abundant in reservoirs.

(Contribution from the Zoological Department of Pomona College)



# Molluscoida at Laguna Beach

## ENTOPROCTAN BRYOZOANS

*Myosoma spinosa* Robertson. These were obtained in considerable numbers from the surfaces of wavy top shells, *Astræa undosa* Wood. These shells were dredged in from ten to fifteen fathoms of water just off shore.

*Barentsia gracilis* Hincks. These were determined for us by Dr. Robertson. Specimens have been collected every summer for the last few years. They occur under stones at low tide. They have also been found in abundance on the under sides of the worm cases of *Sabellaria californica* and under rock ledges. In spite of their small size these little "bobbing heads" are quite evident in extensive areas.

## FRESH WATER BRYOZOANS NEAR LAGUNA

During the summer of 1915 a number of specimens of fresh water bryozoans were collected on submerged leaves in the medium-sized lake, six miles inland from Laguna Beach. In the summer of 1917 no bryozoans were found in this lake, but some were found at the south end of the more northern lake and at the east end of the largest lake. Some of these were determined by Dr. Robertson as *Plumatella repens* L.

## ECTOPROCTAN BRYOZOA

The following have been determined from the papers of Robertson:

### NON-INCRUSTING FORMS

#### AETIDEÆ

*Aetea anguina* Linn. Found on brown algæ.

#### EUCRATHIDÆ

*Eucratea chelata* Linn. Found on a dredged decorator crab.

#### CELLULARIDÆ

*Menipea occidentalis* Trask.

*M.o. catalinensis* Rob. From kelp holdfasts. Some on decorator crab.

*Scrupocellaria californica* Trask.

*S. varians* Hincks. Kelp holdfasts.

*S. diegensis* Rob. Under rocks, low tide.

#### BICELLARIIDÆ

*Bugula neritina* Linn. Common under rocks. Also on piles at Balboa Bay.

*Bugula* Sp. Apparently not given by Robertson.

#### CELLARIIDÆ

*Cellaria mandibulata* Hincks. Abundant along shore.

#### VESICULARIIDÆ

*Amathia dichotoma* Ver. Masses of what appeared to be this species occurred under rocks at Laguna and also on the piles at Balboa Bay. This often swarms with many small pycnogonids.

## INCRUSTING BRYOZOA

#### MEMBRANIPORIDÆ

*Membranipora tehuelcha* d'Orbigny. Abundant on sea weeds, often large masses.

*M. membranacea* Linn. On large flat algæ.

*Membranipora* sp.?

## STEGANOPORIDÆ

*Thalamoporella rozieri* Aud. Abundant under rock ledges.

## MICROPORIDÆ

*Microporella malusi* Aud. On stems of holdfasts from deep water.

## MYRIOZOIDÆ

*Schizoporella hyalina* Linn. Small patches on brown algæ.

*S. insculpta* Hincks. On twigs or stems.

*S. oligopus* Robert. Dredged off shore.

*Myriozum* sp. One or more species seemed to belong to this genus. Dredged.

## ESCHMIDTÆ

*Lepralia bilobata* Hincks? A small bit dredged off shore.

*Forcella conatuna* Busk. On mussel shell.

*Retopora pacifica* Rob. Dredged.

## CYCLOSTOMATA

## CRISIDÆ

*Crisia geniculata* Milne Edw. One of the common shore forms.

*C. edwardsiana* d'Orbig. On a crab from deep water, 15 fathoms.

*C. pacifica* Rob. Small bit dredged.

## TUBULIPORIDÆ

*Tubulipora pulchra* MacG. On broad surfaces of algæ.

*Idmonca californica* d'Orbig. Dredged.

*Cusulipora occidentalis* Rob. Very common along shore.

## LICHENOPORIDÆ

*Lichenopora radiata* Aud. Small patches on seaweed.

## THE SAND BRACHIOPOD

*Glottidea albida* Hinds. was first found by us, White and Hilton, at Balboa Bay. The place where they were most abundant was a little cove just off from the main bay. Here a narrow channel led to a rather deep pool. Here in the sand at the edge of the pool about a dozen specimens were found.

## A RECORD OF PHORONIS

During the summer of 1917 a number of specimens of *Phoronis* were collected by White and Hilton. A study of some of these seems to show that they are *Phoronis pulchra* Torre. This is the first record of an animal of this group so far south in California.

(Contribution from the Zoological Department of Pomona College)



# Laguna Beach Summer School, 1918

To reach Laguna Beach from Los Angeles take the electric or Santa Fe to Santa Ana. From Santa Ana a morning stage leaves at ten, an afternoon stage at four.

Work begins June 20 and regular courses last six weeks, but the laboratory is open all summer.

No one may register for more than six hours. By an hour is included the equivalent of an hour's work during a regular college semester.

The tent city and dining hall will again offer accommodations at reasonable prices. The cost of tuition is \$7.50 general charge and \$3.00 an hour per hour taken.



By an hour is meant the equivalent of an hour's work in a regular college semester. There are eight private rooms for special investigators.

For further information write to the Director, William A. Hilton, Pomona College, Claremont, Cal. (Laguna Beach, Cal., from June 20 to September 20.)

1. S. B. 11. Zoology (2 hours). A synopsis of marine invertebrates. Lectures and class exercises with early morning field trips. Prerequisite Biology A1, or open to those who are taking some other biological work. M. to F. at 8.

- 1a. S. B. 11. Zoology. Marine invertebrates (1 hour if taken with 1, or 2 hours). Laboratory on typical local forms. Mornings 9 to 12, except Saturday.
2. S. B. 18. General Entomology (2 to 3 hours). Class laboratory and field work in the general study of local insects. Prerequisite Biology A1, or Zoology B11, or may be accompanied by one of these. Class period M. to F. at 11. Laboratory and field work at hours to be arranged.
3. S. A1. General Biology (3 hours). A beginning course dealing with general principles. Open to those who have had no biological work and who have either entered college or are about to enter. Class periods M. to F. at 11. Laboratory and field work afternoons.



4. S. C. 4. Ecology (2 or 3 hours). Class, field and laboratory work at hours to be arranged. A study of local land and aquatic societies and the factors governing the distribution of marine, fresh water and land forms. Prerequisite, a year of biological work. Class periods M. W. F. at 1.

In addition to these courses special C. or D. work for 2 or 3 hours may be taken as follows:

- a. Special field and laboratory work with some group of marine animals, such as amphipods, isopods, decapods, gastropods, etc.



- b.* Special field and laboratory work in Entomology, either with some single order or family, or life history work.
- c.* Special field and laboratory work in the embryology of invertebrates.
- d.* Special field and laboratory work in Ecology. Hours to be arranged.

The following work in art will be offered by Miss Anna A. Hills:

1. S. A1. Art (2 hours) zoological drawing. A beginning course for students of Biology with marine and land specimens as material. This course will be an aid to any who may wish to prepare illustrations for scientific papers or books. Pen and ink, pencil and colored methods will be given. Tuition the same as in other courses. Students furnish their own drawing materials.
- .2 Outdoor sketch class with either water colors or oils—oils preferred.
3. Outdoor figure work. Especially arranged for if desired by those who have done out-of-door work.

Rates for two and three, 75 cents per hour. Each should be taken in three periods of three hours each.





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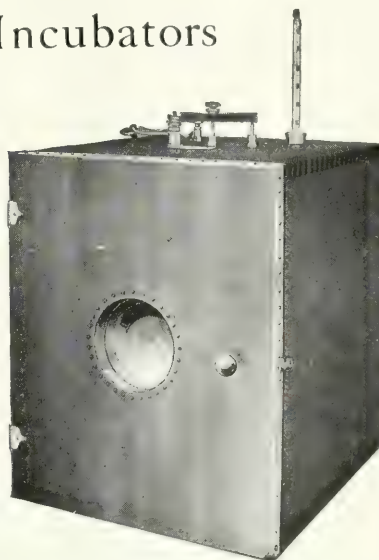
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